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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/079,875      | 02/22/2002  | Joel Jacquet         | Q68645              | 7893             |

7590 12/16/2002

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EXAMINER

NGUYEN, TUAN M

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2828

DATE MAILED: 12/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/079,875

Applicant(s)

JACQUET, JOEL

Examiner

Tuan M Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

  
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**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All   b) ☐ Some \*   c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.                      6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding to claim 1, claim 1 is written in terms of narrative. The claim recites a wavelength tunable laser as what verse as how the tunable laser is connected for its function. The claim is written in such a narrative way the claim fails to comply with the means plus function as required under 35 USC 112, 2<sup>nd</sup> paragraph. The claim recites a wavelength tunable laser including a first resonant cavity containing an optical amplifier medium and a reflector external to said first cavity delimiting a second cavity. The claim fails to provided any means, any structure and structural relation ship to support a wavelength tunable laser which render the claim confusing, vague and indefinite. The claim also recite having reflective peaks for an integer number N of optical frequencies. It is unclear as what is the reflective peak of an integer N of optical frequencies. Further the claim recites in which laser said first cavity is formed of two opposed reflector members that are not wavelength selective and delimit an amplifier first active section coupled to a phase tuning second active section. It is unclear in which laser is meant whether it is a wavelength tunable laser or another laser which render the claim confusing and vague. Furthermore the claim recites an effective group index that can be adjusted electro-optically as a function of an electrical voltage applied to it. The claim fails to provide any means

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to support an effective group index and the means for adjusting and operating function which render the claim confusing, vague and indefinite. Additionally the claim recites the difference between the optical frequencies of any two resonant modes of said first cavity is never equal to the difference between the optical frequencies of any two reflectivity peak of said reflector. The claim fails to define as how to derive of the function. It is not clear as what is the creditability of this function which render the claim confusing, vague and indefinite.

Regarding to claims 2-3, the claims recite wavelength tunable laser wherein the difference between any two adjacent optical frequencies of reflective peak is constant and the optical frequencies of said reflectivity peaks are interleaved with consecutive optical frequencies of resonant modes. The claims fail to provide any means, any structure and structural relationship to support the wavelength tunable laser which render the claim confusing, vague and indefinite.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coldren (6,349,106) in view of Adair et al (6,490,381).

With respect to claim 1, Coldren discloses a wavelength converter assembly (10) comprising a multi-section tunable laser section (12) includes first and second SGDBR (18, 20), a multiple active gain region (28), an EAM (26), a first /second SOA (22, 24), a photo detector element (14) can includes first/second filter (32, 34) an SOA (30) and an absorber (36) and the current conditioning circuit element (16). The wavelength converter assembly (10) can be enhanced by incorporation of a multi-layer stack beneath the wavelength converter (10) to create a resonant cavity photo diode (14), note col. 5 line 43 to col. 7 line 59, see figs. 1 to 5b. However Coldren does not discloses the active section adapted to be connected to its own electrical supply Whereas Adair discloses the active section is connected to a control signal such as electrical voltage, note cols. 9-12, see figs. 4a-8. For the advantageous of Fabry Perot optical switch, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Coldren with the control signal such as electrical voltage connected to active region as taught or suggested by Adair.

With respect to claim 2, Coldren discloses the laser has a first reflector and second reflector that define the laser resonator wherein at least one of the first and second reflectors is frequency selective and tunable, note col. 11.

With respect to claim 3, Adair disclose the plurality channel at common fiber (402) and the express fiber (424), note col. 12, see fig 8.

With respect to claims 4-5, Adair disclose the Fabry Perot filters (702, 704) and sample Bragg reflector grating shows as first to fourth reflectors (710, 712, 714, 716), see fig 7a.

With respect to claim 6, Adair disclose the sample Bragg grating and the waveguide has a pitch that is not constant, note col. 9 line 31 to col. 12 line 67, see figs. 4a-7a.

With respect to claims 7-8, Adair disclose the multi- cavity Fabry Perot structure (432) such as five cavity structure is placed between optical isolator (434, 436), see figs. 4c and 8.

With respect to claims 9-10, Adair disclose the variation of the effective group index of said phase tuning second active section is obtained by Franz Keldysh effect and by a Stark quantum confinement electro optical effect, note col. 2.

#### **Citation Of The Pertinent References**

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patent to Hsu et al (US patent 6,263,002) discloses tunable fiber Fabry Perot surface emitting laser.

The patent to Morton et al (US patent 4,975,918) discloses tunable laser.

***Communication Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan M Nguyen whose telephone number is (703) 306-0247. The examiner can normally be reached on 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-5511 for regular communications and (703) 306-5511 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.



Paul Ip  
SPE  
Art unit 2828

TMN  
December 6, 2002